



# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>F18624</b>		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/16
International application No. <b>PCT/IB2004/004064</b>		International filing date (day/month/year) <b>10.12.2004</b>		Priority date (day/month/year) <b>12.12.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>A42B3/04, A42B3/16</b>				
Applicant <b>TIEGS, Lonnie Dale</b>				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 9 sheets, as follows:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.18 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 602 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>				
Date of submission of the demand <b>12.10.2005</b>		Date of completion of this report <b>25.01.2006</b>		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer <b>D'Souza, J</b> Telephone No. +31 70 340-4236 		

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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/IB2004/004064

## Box No. 1 Basis of the report

1. With regard to the **language**, this report is based on the International application in the language in which it was filed, unless otherwise indicated under this item.

- This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- international search (under Rules 12.3 and 23.1(b))
  - publication of the international application (under Rule 12.4)
  - international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

### Description, Pages

1, 4, 6-19 as originally filed  
2, 3, 5 filed with telefax on 12.10.2005

### Claims, Numbers

1-16 filed with telefax on 12.10.2005

### Drawings, Sheets

1/10-10/10 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	1-16
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Re Item V****Reasoned statement with regard to novelty, inventive step and industrial  
applicability; citations and explanations supporting such statement**

Reference is made to the following document:

D1: US-B1-6 286 149 (WHITAKER KEVIN D) 11 September 2001 (2001-09-11)

**1 Claim 1 - Novelty (Article 33(2) PCT)**

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

An air-deflection attachment (10) for an item of protective sports gear (77, 78) worn on the head of a wearer, the attachment including:  
a deflector portion (12) of unitary substantially air-impermeable flexible construction for location alongside the face and forwardly from an ear of a wearer of the item of protective gear, the deflector portion (12) being generally in the form of a vertically elongated aerofoil, having an operatively inner face (20) and an operatively outer face (22), the inner face (20) and the outer face (22) meeting along an operatively leading edge (16) of the deflector portion (12) and respectively extending between said leading edge (16) and an operatively trailing edge (18) of the deflector portion (12), the inner face (20) providing an inner edge spaced laterally inwardly from the trailing edge (18) for substantially sealingly abutting a side of the face of the wearer, and the outer face (22) being for deflecting flow of air past the head of a wearer arising from movement of the wearer in a direction in which the wearer is facing, the deflection being away from the wearer's outer ear canal opening, and acting to reduce wind noise levels experienced by the wearer when moving; and  
an attachment portion ((30, 42) attached to the deflector portion (12) for releasably attaching the attachment to the item of protective gear (77, 78).

The subject-matter of claim 1 therefore differs from this known attachment in that the inner edge is provided by a ridge extending longitudinally along at least part of the

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inner face of the deflector portion and that the deflector portion is in the form of a moulding of resiliently flexible plastics foam construction.

The subject matter of claim 1 is therefore novel (article 33(2) PCT).

**2 Claim 1 - Inventive step (Article 33(3) PCT)**

The problem to be solved by the present invention may be regarded as being to improve the performance of an air-deflection attachment.

The solution to the problem proposed in claim 1 of the present application is considered to involve an inventive step (Article 33(3) PCT), because in the available prior art it is neither known nor suggested to construct the attachment in such a way that it conforms to the shape of the face to achieve a sealing abutment. In particular when used with a protective helmet, it is not necessary to over-tighten the chin strap of the helmet in order to be effective.

**3 Independent Claims 13 & 14**

The same reasoning applies mutatis mutandis to the subject matter of corresponding independent claims 13 & 14, which therefore are also considered to be novel and inventive.

**4 Dependent Claims**

Claims 2 - 12 and 15 are dependent on claims 1 and 14 respectively and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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of the deflector portion, the inner face providing an inner edge spaced laterally inwardly from the trailing edge for substantially sealingly abutting a side of the face of the wearer, the inner edge being provided by a ridge extending longitudinally along at least part of the inner face of the deflector portion, and the outer face being for deflecting flow of air past the head of a wearer arising from movement of the wearer in a direction in which the wearer is facing, the deflection being away from the wearer's outer ear canal opening, and acting to reduce wind noise levels experienced by the wearer when moving, the deflector portion being in the form of a moulding of resiliently flexible plastics foam construction, the flexible construction of the deflector portion permitting conformation of the inner edge thereof to the shape of the side of the face of a wearer of the item of protective gear; and

an attachment portion attached to the deflector portion for releasably attaching the attachment to the item of protective gear.

It will be appreciated that in sports such as, for example, in-line skating or rollerblading, snowboarding, skiing, and yachting, where a sportsperson's head does not always necessarily face in the direction in which the sportsperson moves, each attachment will also act to deflect flow of air past the head of the sportsperson away from the sportsperson's outer ear canal opening, when the sportsperson's head is, within limits, turned sideways.

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ridge providing the inner edge of the deflector portion may be spaced from the leading edge of the deflector portion and spaced from the trailing edge of the deflector portion, part of the deflector portion forming a forward extension of the deflector portion from the ridge, and the attachment portion being attached to said extension.

Naturally, the vertical length and the shape of the attachment may be customized by being selected in accordance with the length and shape of a particular sportsperson's ears, and in accordance with an expected or actual angle of attack, which angle of attack varies from sport to sport, which the sportsperson's head is expected to make with air flow past the sportsperson's head. The size and the shape of the attachment may further be customized in accordance with personal auditory preference of sportspeople, and in accordance with the particular construction of an item of protective sports gear to which the attachment is intended to be attached.

The attachment portion may be of unitary construction, being releasably attached to the forward extension of the deflector portion.

In one embodiment, the attachment may be for attachment to a protective sports helmet, the attachment portion including at least one clip for attaching the attachment to a strap of the sports helmet, each clip including a pair of limbs fast with each other at the leading edge of the deflector portion and projecting rearwardly from the leading edge, one limb being located on the operatively inner face of the forward extension of the deflector portion and the other limb being located on the operatively

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length of the extension, the clip comprising two limbs fast with the spine formation for receiving therebetween part of a said ear shaft assembly.

The spine formation may be of composite construction, having an inner component located on the inner face of the extension and from which inner component the clip projects, and an outer component located on the outer face of the extension, one said component being provided with a prong projecting laterally therefrom through an opening in the extension spaced from the leading edge of the deflector portion and spaced from said ridge, the other said component being provided with an aperture for securingly receiving the prong.

Said one component may include a plurality of said prongs longitudinally spaced in series, the extension being provided with a corresponding plurality of said openings for respectively receiving the respective prongs, the other component being provided with a corresponding plurality of apertures for respectively securingly receiving the respective prongs, one of the components being provided with an operatively upwardly projecting restriction or stop formation for abutting the ear shaft assembly of the pair of glasses, to restrict pivoting of the lower end of the attachment away from the side of the face of a wearer of the pair of glasses about an axis extending in the fore and aft direction, parallel to the ear shaft of the glasses.

The attachment portion may be of resiliently flexible construction, the flexibility of the spine formation increasing towards the operatively lower end thereof, to promote conformation of the inner edge of the deflector portion with a side of the face of

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**CLAIMS:**

1. An air-deflection attachment for an item of protective sports gear worn on the head of a wearer, the attachment including:

a deflector portion of unitary substantially air-impermeable flexible construction for location alongside the face and forwardly from an ear of a wearer of the item of protective gear, the deflector portion being generally in the form of a vertically elongated aerofoil, having an operatively inner face and an operatively outer face, the inner face and the outer face meeting along an operatively leading edge of the deflector portion and respectively extending between said leading edge and an operatively trailing edge of the deflector portion, the inner face providing an inner edge spaced laterally inwardly from the trailing edge for substantially sealingly abutting a side of the face of the wearer, the inner edge being provided by a ridge extending longitudinally along at least part of the inner face of the deflector portion, and the outer face being for deflecting flow of air past the head of a wearer arising from movement of the wearer in a direction in which the wearer is facing, the deflection being away from the wearer's outer ear canal opening, and acting to reduce wind noise levels experienced by the wearer when moving, the deflector portion being in the form of a moulding of resiliently flexible plastics foam construction, the flexible construction of the deflector portion permitting conformation of the inner edge thereof to the shape of the side of the face of a wearer of the item of protective gear, and

an attachment portion attached to the deflector portion for releasably attaching the attachment to the item of protective gear.

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2. An attachment as claimed in Claim 1, in which the ridge providing the inner edge of the deflector portion is spaced from the leading edge of the deflector portion and spaced from the trailing edge of the deflector portion, part of the deflector portion forming a forward extension of the deflector portion from the ridge, and the attachment portion being attached to said extension.

3. An attachment as claimed in Claim 2, in which the attachment portion is of unitary construction, being releasably attached to the forward extension of the deflector portion.

4. An attachment as claimed in Claim 3, which is for attachment to a protective sports helmet, the attachment portion including at least one clip for attaching the attachment to a strap of the sports helmet, each clip including a pair of limbs fast with each other at the leading edge of the deflector portion and projecting rearwardly from the leading edge, one limb being located on the operatively inner face of the forward extension of the deflector portion and the other limb being located on the operatively outer face of the extension, with the extension being sandwiched between the limbs of each clip, the extension being provided with at least one opening spaced from the leading edge of the deflector portion and spaced from said ridge, through which aperture at least one of the limbs of each clip extends, the free ends of the limbs

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of each clip being releasably securable together, to permit the strap of the helmet to be received between the extension and one of the limbs of each clip.

5. An attachment as claimed in Claim 4, in which each attachment portion includes a plurality of said clips longitudinally spaced in series along the length of the extension, the attachment portion also including a spine formation connecting the plurality of clips together, the extension being provided with a corresponding plurality of longitudinally spaced openings through which one limb of each clip extends.

6. An attachment as claimed in any one of the preceding claims, in which the attachment portion is in the form of a moulding of flexible synthetic plastics material.

7. An attachment as claimed in Claim 2, which is for attachment to a pair of glasses, the attachment portion including a clip for attaching the attachment to an ear shaft assembly of the pair of glasses.

8. An attachment as claimed in Claim 7, in which the attachment portion includes an elongated spine formation fast with and extending longitudinally along at least part of the vertical length of the extension, the clip comprising two limbs fast with the spine formation for receiving therebetween part of a said ear shaft assembly.

9. An attachment as claimed in Claim 8, in which the spine formation is of composite construction, having an inner component located on the inner face of the

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extension and from which inner component the clip projects, and an outer component located on the outer face of the extension, one said component being provided with a prong projecting laterally therefrom through an opening in the extension spaced from the leading edge of the deflector portion and spaced from said ridge, the other said component being provided with an aperture for securely receiving the prong.

10. An attachment as claimed in Claim 9, in which said one component includes a plurality of said prongs longitudinally spaced in series, the extension being provided with a corresponding plurality of said openings for respectively receiving the respective prongs, the other component being provided with a corresponding plurality of apertures for respectively securely receiving the respective prongs, one of the components being provided with an operatively upwardly projecting restriction or stop formation for abutting the ear shaft assembly of the pair of glasses, to restrict pivoting of the lower end of the attachment away from the side of the face of a wearer of the pair of glasses about an axis extending in the fore and aft direction, parallel to the ear shaft of the glasses.

11. An attachment as claimed in Claim 9 or Claim 10, in which the attachment portion is of resiliently flexible construction, the flexibility of the spine formation increasing towards the operatively lower end thereof, to promote conformation of the inner edge of the deflector portion with a side of the face of the wearer of a pair of glasses to which the attachment is attached.

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12. An attachment as claimed in any one of Claims 9 - 11 inclusive, in which the inner component and the outer component are in the form of mouldings of flexible synthetic plastics material.

13. A set of attachments for an item of protective gear, the set including two attachments as claimed in any one of the preceding claims, one of the attachments being shaped for association with the left ear of a wearer of the item of protective gear, the other attachment being shaped for association with the right ear of the wearer.

14. A protective sports gear assembly which comprises:  
an item of protective sports gear worn on the head of a wearer, and  
a pair of air-deflection attachments attached to opposites sides of the item of protective sports gear, each air-deflection attachment being an attachment as claimed in any one of Claims 1 - 3 inclusive, one attachment being shaped for association with left ear of a wearer of the item of protective sports gear, and the other attachment being shaped for association with the right ear of the wearer.

15. A protective sports gear assembly as claimed in Claim 14, in which the item of protective sports gear is a protective sports helmet having chin straps, each air-deflection attachment being an attachment as claimed in any one of Claims 4 - 6 inclusive, each attachment being attached to a chin strap of the helmet.

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16. A protective sports gear assembly as claimed in Claim 14, in which the item of sports gear is a pair of glasses, each air-deflection attachment being an attachment as claimed in any one of Claims 7 – 12 inclusive, each attachment being attached to an ear shaft assembly of the pair of glasses.

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